

## GREGG SCOTT JAEGER

### ADDRESS:

Natural Sciences and Mathematics,  
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### CITIZENSHIP:

U.S. citizen

### AREAS OF PUBLICATION:

Quantum Information, Foundations of Quantum Mechanics, Quantum Cryptography, Quantum Metrology,  
History and Philosophy of Science, Quantum Optics, Stochastic Processes, Genetics

### EDUCATION:

Ph.D., Physics, January 1995, Boston University  
B.Sc., Mathematics, June 1986, University of Wisconsin–Madison  
B.Sc., Philosophy, June 1986, University of Wisconsin–Madison  
B.Sc., Physics, June 1986, University of Wisconsin–Madison

### CAREER HISTORY:

Fall 2009–present: Associate Professor, Natural Sciences and Mathematics,  
College of General Studies, Boston University, Boston MA, USA  
2003–Spring 2009: Assistant Professor, Natural Science,  
College of General Studies, Boston University, Boston MA, USA  
2001–2003: Senior Research Associate, Quantum Imaging Laboratory  
Electrical and Computer Engineering, College of Engineering, Boston University, Boston MA, USA  
1999–2001: Director of Research, Quantum Computing,  
MagiQ Technologies, Somerville MA, USA  
1999: Chief Scientist, Quantum Information,  
Starlab nv, Brussels–Zaventem, Belgium  
1998–1999: Senior Research Associate, Quantum Imaging Laboratory,  
Electrical and Computer Engineering, College of Engineering, Boston University, Boston MA, USA  
1998–1999: Guest Researcher, Physics Laboratory, Optical Technology Division,  
National Institute of Standards and Technology (NIST), Gaithersburg MD, USA  
1997–1998: Lecturer, Department of Mathematics,  
College of Arts and Sciences, Boston University, Boston MA, USA  
1996–1997: Lecturer, Department of History and Philosophy of Science,  
Stonehill College, Easton MA, USA  
1994–1997: Assistant Professor, Natural Science,  
College of General Studies, Boston University, Boston MA, USA

## BOOKS (in chronological order):

- [1] Gregg Jaeger, *Quantum Information: An overview* (Springer; New York, 2007).
- [2] Gregg Jaeger, *Entanglement, Information, and the Interpretation of Quantum Mechanics* (Springer; Heidelberg; 2009).
- [3] L. Accardi, G. Adenier, C. A. Fuchs, G. Jaeger, A. Khrennikov, J.-A. Larsson, and S. Stenholm (Eds.) *Foundations of Probability and Physics - 5* (American Institute of Physics; Melville NY, 2009).
- [4] Alisa Bokulich and Gregg Jaeger (Eds.), *Philosophy of Quantum Information and Entanglement* (Cambridge University Press; Cambridge, 2010).
- [5] G. Jaeger, A. Khrennikov, M. Schlosshauer, G. Weihs (Eds.), *Advances in Quantum Theory* (American Institute of Physics; Melville NY, 2011).
- [6] Gregg Jaeger, *Quantum objects: Non-locality and objective indefiniteness in quantum physics* (Springer; Heidelberg, 2014).
- [7] Alain Aspect (Author), Guillaume Adenier, Gregg Jaeger, and Andrei Khrennikov (Translators) *Three Experimental Tests of Bell's Inequalities by Correlation Measurements of Photon Polarization* (Springer; Heidelberg, under review).
- [8] David Simon, Gregg Jaeger, Alexander Sergienko, *Quantum Optical Metrology, Imaging, and Communication* (Springer; in press).
- [9] Erhard Scheibe (Author), Gregg Jaeger, Paul Busch (Editors) *The Reduction of Physical Theories—A Contribution to the Unity of Physics* (Springer; in progress).
- [10] Tommaso Toffoli and Gregg Jaeger, *Philosophy of Quantum Information and Entanglement* (Cambridge University Press; in progress).

## BOOK CHAPTERS AND ENCYCLOPEDIA ENTRIES (in chronological order):

- [1] G. Jaeger, "An Outline of the Philosophy of Science in the Twentieth Century," *Zbornik Radova: Twentieth Anniversary Volume* (University of Tuzla; Tuzla Bosnia-Herzegovina, 1997), p. 223.
- [2] G. Jaeger, A.V. Sergienko, "Multi-photon Interferometry," in E. Wolf (ed.) *Progress in Optics* **42** (2001), p. 277.
- [3] G. Jaeger, S. Sarkar, "Coherence, Entanglement, and Reductionist Explanation in Quantum Physics," in J. Renn (ed.), *Revisiting the Foundations of Relativistic Physics* (Kluwer; Dordrecht, 2003), p. 523.
- [4] G. Jaeger, "Quantum and Superquantum Correlations," in T. Nieuwenhuizen (ed.), *Beyond the Quantum* (World Scientific; Singapore, 2007), p. 146.
- [5] G. Jaeger, "Double-slit Experiment," in B. Falkenburg, D. Greenberger, K. Hentschel, F. Weinert (Eds.), *Compendium of Quantum Physics* (Springer-Verlag; Heidelberg, 2009).
- [6] P. Busch and G. Jaeger, "Which-Way Experiment/Welcher-Weg Experiment," in B. Falkenburg, D. Greenberger, K. Hentschel, F. Weinert (Eds.), *Compendium of Quantum Physics* (Springer-Verlag; Heidelberg, 2009).
- [7] G. Jaeger, "Quantum Theoretical Approaches and Causality," in J. W. Haag, G. R. Peterson, and M. L. Spezio (Eds.), *The Routledge Companion to Religion and Science* (Routledge; London, 2011).
- [8] D. Simon, G. Jaeger, and A.V. Sergienko, "Quantum Information in Communication and Imaging" (World Scientific, in press)
- [9] G. Jaeger, "Overcoming Conceptual Imprecision in Quantum Measurement Theory: Measurement and Macroscopicity." in Mary Bell and Shan Gao (eds.) *Quantum Nonlocality and Reality* (Cambridge: Cambridge University Press) (in press).

## PROFESSIONAL ACTIVITIES AND INVITED COMMUNITY SERVICE (in chronological order):

### Conference Organization and Committees:

- Co-organizer (with A. Bokulich), *Foundations of Quantum Information and Entanglement*, NSF/Boston University, Boston MA, March 24-25, 2006.
- Co-organizer (with G. Adenier, A. Khrennikov, T. Nieuwenhuizen, and S. Stenholm), *Foundations of Probability and Physics - 5*, Växjö, Sweden, 2008.
- Co-organizer (with A. Khrennikov, T. Nieuwenhuizen, H.-T. Elze, I. Bengtsson, and I. Volovich), *Quantum Theory Reconsideration of Foundations - 5*, Växjö, Sweden, 2009.
- Scientific Committee Member, *Frontiers of Quantum and Mesoscopic Thermodynamics*, Prague, Czech Republic, 2009.
- Co-organizer (with A. Khrennikov, K.-F. Berggren, S. Stenholm, M. Schlosshauer, and G. Weihs), *Advances in Quantum Theory*, Växjö, Sweden, 2010.
- Program Committee Member, *UC10 - Unconventional Computation 2010*, Tokyo, Japan, 2010.
- Co-organizer (with A. Khrennikov, V. Belavkin, S.-M. Fei, E. Haven, B. Hiesmayer, J.-A. Larsson, M. Ozawa, S. Stenholm, and J. Tollaksen), *Foundations of Probability and Physics - 6*, Växjö, Sweden, 2011.

Scientific Committee Member, *Frontiers of Quantum and Mesoscopic Thermodynamics–11*, Prague, Czech Republic, 2011.  
Scientific Committee Member, *Frontiers of Quantum and Mesoscopic Thermodynamics–13*, Prague, Czech Republic, 2013.  
Co-organizer, Workshop: *Quantum Theory, Advances and Problems*, Växjö, Sweden, June 2013.  
Scientific Committee Member, *Frontiers of Quantum and Mesoscopic Thermodynamics–15*, Prague, Czech Republic, 2015.  
Program Committee Member, *Quantum Computation, Quantum Information, and the Exact Sciences*, Munich Center for Mathematical Philosophy, München, Germany 2015.

#### **Short-term Visits:**

July/August, 1996, 1997: Visiting Professor (Summer University), Department of Mathematics and Physics, Liberal Arts Faculty, University of Tuzla, Bosnia-and-Herzegovina  
March, 2007: Visiting Researcher, Perimeter Institute for Theoretical Physics, Waterloo Ontario, Canada

#### **Editorial Positions:**

Editorial Board Member for the Book Series *Fundamental Theories of Physics* (Springer, since 2009).  
Associate Editor, *Quantum Information Processing* (Springer, since February, 2008).  
Associate Editor, *ICST Transactions on Quantum Communication* (Institute for Computer Sciences, Social-Informatics and Telecommunications Engineering, since 2009).  
Guest Editor, *Special Issue on Foundations of Quantum Information [Quantum Information Processing]* (Springer, April, 2010).  
Guest Editor, *Special Issue: “Quantum Information and Communication” [Entropy]* (MDPI, 2016).

#### **Referee Activity:**

**Journals:** *American Journal of Physics*, *British Journal for the Philosophy of Science*, *Annals of Physics*, *Entropy*, *European Journal of Physics*, *Europhysics Letters*, *Europhysics B*, *Foundations of Physics*, *ICST Transactions on Quantum Communication*, *International Journal of Theoretical Physics*, *Journal of Computational and Theoretical Nanoscience*, *Natural Computing*, *New Journal of Physics*, *Optics Communications*, *Philosophy of Science*, *Physical Scripta*, *Physical Review A*, *Physical Review Letters*, *Physics Letters A*, *Proceedings of the Royal Society (London) A*, *Quantum Information Processing*, *Studies in History and Philosophy of Modern Physics*.

**Books:** Cambridge University Press, Imperial College Press, Princeton University Press, Springer, Bentham Science Publishers, CRC Press—Taylor & Francis

#### **Funding Agency Advising:**

Austrian Science Fund (Der Wissenschaftsfonds) (Austria), Civilian Research and Development Foundation (USA), European Science Foundation (European Union), Natural Sciences and Engineering Research Council (Canada)

#### **HONORS AND AWARDS:**

Peyton Richter Award for Interdisciplinary Teaching, Boston University (2012)  
Kavli Fellow (2008)  
Ismail Sensel Award for Excellence in Research, Boston University (2007)  
Biographic Listing in Who’s Who in Science and Engineering (2007–present)

#### **DOCTOR OF PHILOSOPHY STUDENT SUPERVISION:**

Kevin Ann, Thesis title “Sudden Death of Entanglement and Non-locality in Two- and Three-Component Systems,” Department of Physics, Boston University (2011). [First Reader and Ph.D. Advisor]  
Kaća Bradonjić, Thesis title “Definability and Measurability: Implications for Quantum Mechanics, Gravitational Physics, and Quantum Field Theory,” Department of Physics, Boston University (2012). [Second Reader]  
Alastair Abbott, Thesis title “Value Indefiniteness, Randomness and Unpredictability in Quantum Foundations,” Department of Computer Science, University of Auckland, New Zealand (2015) [External Evaluator]

## COURSES TAUGHT:

*Undergraduate:* Quantum Mechanics, Statistical Thermodynamics, Calculus, Discrete Mathematics I + II, Linear Algebra I + II, Statistics, The Scientific Revolution, Scientific Revolutions (I. Evolutionary Theory, II. Cosmological Theory), Philosophy of Science, Biology I .  
*Graduate:* Philosophy of Quantum Information.

## INTERNATIONAL TALKS:

- “Randomness in Quantum Mechanics,”
- “Quantum and Beyond,” Växjö, Sweden (June, 2016). (Invited)
- “Conceptualizing Measurement,”
- Frontiers of Quantum and Mesoscopic Physics, Prague, Czech Republic (July, 2015). (Invited)
- “Quanta and Measurement,”
- “Quantum Theory: From foundations to technologies,” Växjö, Sweden (June, 2015). (Invited)
- “Macroscopicity and Quantum Measurement,”
- “Quantum Theory: From Problems to Advances,” Växjö, Sweden (June, 2014). (Invited)
- “Macroscopic Realism and Quantum Information: Classicality and Measurement,” Marcus Wallenberg Symposium
- “Quantum Theory: Advances and problems,” Växjö, Sweden (June, 2013). (Invited)
- “Matter and Information in Quantum Theory,”
- Quantum Theory Reconsideration of Foundations - 6, Växjö, Sweden (June, 2012). (Invited)
- “Matter and Information in Quantum Theory,”
- Quantum Theory Reconsideration of Foundations - 6, Växjö, Sweden (June, 2012). (Invited)
- “Causation and Quantum Mechanics,”
- International Conference on Foundations of Probability and Physics - 6, Växjö, Sweden (June, 2011). (Invited)
- “Entanglement, Individuation, and Space-time,”
- Advances in Quantum Theory, Växjö, Sweden (June, 2010). (Invited)
- “A Foundational Problem Arising from Entanglement: System Identity,”
- Quantum Theory: Reconsideration of Foundations - 5, Växjö, Sweden (June, 2009). (Invited)
- “Quantum Computing,”
- US-French Kavli Frontiers of Science, Roscoff, France (November 2008). (Invited)
- “Sudden Death of Non-locality,”
- International Conference on the Foundations of Probability and Physics - 5, Växjö, Sweden (Aug., 2008). (Invited)
- “Decoherence, Disentanglement and Foundations of Quantum Mechanics,”
- Quantum theory: Reconsideration of foundations 4, Växjö, Sweden (June, 2007). (Invited)
- “Decoherence, Entanglement, and the Foundation of Quantum Mechanics,”
- Perimeter Institute for Theoretical Physics Waterloo, Ontario (March, 2007).
- “Quantum Codes, Entanglement, and Decoherence,”
- 37th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, Utah (January, 2007). (Invited)
- “Fractal States for Quantum Information Processing,”
- International Conference on the Foundations of Probability and Physics - 4, Växjö, Sweden (June, 2006). (Invited)
- “Beyond Quantum Mechanics via Communication Complexity,”
- Beyond the Quantum Lorentz Center Workshop Leiden, The Netherlands (May, 2006). (Invited)
- “Exploring Multipartite Entangled States,”
- 36th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, Utah (January, 2006). (Invited)
- “Quantum Information: An Overview,”
- Department of Electrical and Computer Engineering, Boston University, Boston MA (September, 2005).
- “Symmetrical Multiple-qubit States for Decoherence-free Quantum Communication,”
- Institut für Quantenelektronik Department Physik
- Eidgenössische Technische Hochschule Zürich, Switzerland (August, 2005).
- “Entangled States in Quantum Key Distribution Networks,”
- Quantum Theory: Reconsideration of foundations - 3, Växjö, Sweden (June 2005). (Invited)
- “Symmetry and Concatenated Quantum Codes,”
- Conference on Quantum Information and Computation III,
- SPIE International Symposium on Defense and Security, Orlando, FL (March, 2005).
- “Symmetry and Multipartite Entanglement,”
- International Conference on the Foundations of Probability and Physics - 3, Växjö, Sweden (June, 2004). (Invited)
- “Investigating the Quantum Information Capacity of Hyperentangled States,”
- SPIE Aerosense, Orlando, FL, USA (April, 2003).

- “Stochastic Local Operations for Quantum Information Processing,”  
US/Australia Workshop on Solid State and Optical Approaches to Quantum Information Science,  
Sydney/Brisbane Australia (January, 2003).
- “Lorentz Group Invariants of Multi-Photon Polarization States and Entanglement,”  
Foundations of Probability and Physics - 2, Växjö, Sweden (June, 2002). (Invited)
- “Minkowski Invariants from Multi-Photon Stokes Tensors,”  
International Quantum Electronics Conference/Lasers,  
Applications, and Technologies: Quantum Optics, Moscow, Russia (June 22-28, 2002).

#### NATIONAL AND LOCAL TALKS:

- “Possibility and Quantum Measurement,” Boston Center for Philosophy and History of Science Colloquium:  
Quantum mechanics and modality, Boston, MA (October, 2015) (Invited)
- “Sudden Death of Non-local Properties of Compound Quantum Systems,”  
Department of Physics, Worcester Polytech, Worcester MA (November, 2009). (Invited)
- “Decoherence, Entanglement and Foundations of Quantum Mechanics,”  
Department of Physics, Boston University, Boston University, Boston MA (March, 2007).
- “Entanglement, Symmetry and Optical Quantum Memory,”  
Harvard-Smithsonian Center for Astrophysics, Cambridge MA (September, 2004). (Invited)
- “Lorentz-Invariants of Multi-Photon Polarization States and Quantum Entanglement,”  
Optical Society of America Annual Meeting, Orlando FL (September, 2002).

#### JOURNAL ARTICLES (in chronological order):

- [1] G. Jaeger, A. Shimony and M. Horne, “Complementarity of One-particle and Two-particle Interference,”  
*Physical Review A* **48**, 1023 (1993).
- [2] G. Jaeger, A. Shimony and L. Vaidman, “Two Interferometric Complementarities,”  
*Physical Review A* **51**, 54 (1995).
- [3] G. Jaeger and A. Shimony, “Optimal Distinction Between Two Non-orthogonal Quantum States,”  
*Physics Letters A* **197**, 83 (1995).
- [4] G. Jaeger and S. Sarkar, “On the Distribution of Bacterial Mutants. . .” *Genetica* **96**, 217 (1995).
- [5] G. Jaeger, C. Vigier and S. Sarkar, “Bell-type Equalities for SQUIDS. . .,” *Physics Letters A* **210**, 5 (1996).
- [6] G. Jaeger, “The Ehrenfest Classification of Phase Transitions: Introduction and evolution,”  
*Archives for History of Exact Sciences* **53**, 51 (1998).
- [7] G. Jaeger and A. Shimony, “An Extremum Principle for a Neutron Diffraction Experiment,”  
*Foundations of Physics* **28**, 435 (1999).
- [8] E. Dauler, G. Jaeger, A. Migdall, R. Datla and A.V. Sergienko,  
“A Two-photon Technique for Measuring Polarization Mode Dispersion with Subfemtosecond Precision,”  
*Journal of Research of NIST* **104**, 1 (1999).
- [9] A.V. Sergienko, M. Atatüre, Z. Walton, B.E.A. Saleh and M.C. Teich,  
“Quantum Cryptography Using Femtosecond-Pulsed Parametric Down-Conversion,”  
*Physical Review A* **60**, R2622 (1999).
- [10] N. Boeuf, D. Branning, I. Chaperot, E. Dauler, S. Guerin, G. Jaeger, A. Muller, A.L. Migdall,  
“Calculating Characteristics of Non-collinear Phase Matching in Uniaxial and Biaxial Crystals,”  
*Optical Engineering* **39**, 1016 (2000).
- [11] D. Rice, G. Jaeger and B.C. Sanders, “Two-coherent-state Interferometry,”  
*Physical Review A* **62**, 012101 (2000).
- [12] G. Jaeger, M. Teodorescu-Frumosu, A.V. Sergienko, B.E.A. Saleh and M.C. Teich,  
“Multi-photon Stokes Parameter Invariant for Entangled States,”  
*Physical Review A* **67**, 032307 (2003).
- [13] M. Teodorescu-Frumosu and G. Jaeger, “Quantum Lorentz-group Invariants of  $N$ -qubit Systems,”  
*Physical Review A* **67**, 052305 (2003).
- [14] A. V. Sergienko and G. Jaeger,  
“Quantum Information Processing and Precise Optical Measurement with Entangled-photon Pairs,”  
*Contemporary Physics* **44**, 341 (2003).
- [15] G. Jaeger, M. Teodorescu-Frumosu, A.V. Sergienko, B.E.A. Saleh and M.C. Teich,  
“Entanglement, Mixedness and Spin-flip Symmetry in Multiple-qubit Systems,”  
*Physical Review A* **68**, 022318 (2003).
- [16] G. Jaeger, “Bell Gems: The Bell basis generalized,” *Physics Letters A* **329**, 425 (2004).

- [17] G. Jaeger, "Fractal States in Quantum Information Processing," *Physics Letters A* **358**, 373 (2006).
- [18] K. Ann and G. Jaeger, "Disentanglement and Decoherence in Two-spin and Three-spin Systems under Dephasing," *Physical Review B* **75**, 115307 (2007).
- [19] K. Ann and G. Jaeger,  
"Local-dephasing-induced Entanglement Sudden Death in Two-Component Finite-dimensional Systems," *Physical Review A* **76**, 044101 (2007).
- [20] G. Jaeger and K. Ann, "Disentanglement and Decoherence in Pairs of Qutrits under Dephasing Noise," *Journal of Modern Optics* **65**, 2327 (2007).
- [21] K. Ann and G. Jaeger, "Entanglement Sudden Death in Qubit–Qutrit Systems," *Physics Letters A* **372**, 579 (2008).
- [22] G. Jaeger and K. Ann,  
"Local Basis-dependent Noise-induced Bell-nonlocality Sudden Death in Tripartite Systems," *Physics Letters A* **372**, 2212 (2008).
- [23] G. Jaeger and A. V. Sergienko,  
"Constructing Four-photon States for Quantum Communication and Information Processing," *International Journal of Theoretical Physics* **47**, 2120 (2008).
- [24] K. Ann and G. Jaeger, "Generic Tripartite Bell-nonlocality Sudden Death under Local Phase Noise," *Physics Letters A* **372**, 6853 (2008).
- [25] K. Ann and G. Jaeger, "Finite-time Destruction of Entanglement and Non-locality by Environmental Influences," *Foundations of Physics* **39**, 790 (2009).
- [26] G. Jaeger, "Special Issue on Foundations of Quantum Information," *Quantum Information Processing*, **9**, 93 (2010).
- [27] P. Busch and G. Jaeger, "Unsharp Quantum Reality," *Foundations of Physics* **40**, 1341 (2010).
- [28] G. Jaeger, "Individuation in Quantum Mechanics and Space-time," *Foundations of Physics* **40**, 1396 (2010).
- [29] G. Jaeger, "Implications of Disentanglement and Locality Induction for Quantum Information Processing," *Journal of Computational and Theoretical Nanoscience* **8**, 375 (2011).
- [30] P. Busch and G. Jaeger, "Unsharp Quantum Reality," *Foundations of Physics* **40**, 1341 (2011).
- [31] G. Jaeger, "Individuation in Quantum Mechanics," *Foundations of Physics* **41**, 299 (2011).
- [32] G. Jaeger, "Generalized Quantum Probability and Entanglement Enhancement Witnessing" *Foundations of Physics* **42**, 752 (2012).
- [33] G. Jaeger, D. S. Simon, A. V. Sergienko, "Implications of Disentanglement and Locality Induction for Quantum Information Processing and Cryptography," *Quantum Matter* **2**, 247 (2013).
- [34] D. S. Simon, G. Jaeger, Alexander Sergienko, "Coherent State Quantum Key Distribution with Entanglement Witnessing" *Physical Review A* **89**, 012315 (2014).
- [35] D. S. Simon, G. Jaeger, Alexander Sergienko "Quantum information in communication and imaging," *International Journal of Quantum Information* **12**, 143004 (2014).
- [36] G. Jaeger, "What in the (Quantum) World is Macroscopic?" *American Journal of Physics* **82**, 896 (2014).
- [37] G. Jaeger, A. V. Sergienko, "Entanglement Sudden Death: A Threat to Advanced Quantum Key Distribution?" *Natural Computing* **13**, 459 (2014).
- [38] G. Jaeger, "Macroscopic Realism and Quantum Measurement: Measurers as a natural kind" *Physica Scripta* **T163**, 014017 (2014).
- [39] G. Jaeger, "On the Identification of the Components of Compound Quantum Objects" *Foundations of Physics* **44**, 709 (2014).
- [40] G. Jaeger, "Measurement and Fundamental Processes in Quantum Mechanics" *Foundations of Physics* **45**, 806 (2015).
- [41] G. Jaeger, "In Appreciation of Abner Shimony" *Mind and Matter* **13**, 241 (2015).
- [42] G. Jaeger, D. Simon, A. V. Sergienko, "Coherent State Quantum Key Distribution Based on Entanglement Sudden Death," *Quantum Information Processing* **15**, 1117 (2016).
- [43] G. Jaeger, "Grounding the Randomness of Quantum Measurement," *Philosophical Transactions of the Royal Society of London A* **374**, 20150238 (2016).
- [44] G. Jaeger, "Uncertainty Relations and Possible Experience," *Mathematics* **4**, 40 (2016).
- [45] G. Jaeger, "Quantum Randomness and Unpredictability," *Fortschritte der Physik* (in press).

## PATENTS (in chronological order):

- [1] G. Jaeger, "Method and Apparatus for Creating at Least One Qubit in a Quantum Computing Device," U.S. Patent No. 6,633,053 (2003).
- [2] G. Jaeger, "Method and System for the Quantum Mechanical Representation and Processing of Fuzzy Information," U.S. Patent No. 6,675,154 (2004).

## ARTICLES IN CONFERENCE PROCEEDINGS (in chronological order):

- [1] G. Jaeger and A. Shimony, "Complementarity and Path Distinguishability...", *Proceedings of Third International Workshop on Squeezed States and Uncertainty Relations, Baltimore, MD* (1994), p. 523.
- [2] A.V. Sergienko, G. Jaeger and A. Migdall, "Using Correlated Photons to Measure Polarization Mode Dispersion with Attosecond Resolution," in R. Blatt *et al.* (Eds.) *Laser Spectroscopy: XIV International Conference, Innsbruck, Austria, June 7-11, 1999* (World Scientific; Singapore, 1999)
- [3] A. V. Sergienko, G. Di Giuseppe, G. Jaeger, B. E. A. Saleh, M. C. Teich, "Quantum Cryptography with Hyper-entangled States," *Proceedings International Conference on Squeezed States and Uncertainty Relations, Boston, MA 2001* (2002).
- [4] G. Jaeger, M. Teodorescu-Frumosu, A. V. Sergienko, B. E. A. Saleh and M. C. Teich, "Invariants of Multiple-qubit Systems under Stochastic Local Operations," in A. Khrennikov (ed.), *Foundations of Probability and Statistics - 2* (Univ. Växjö; Växjö Sweden, 2002), p. 273 (also quant-ph/301174).
- [5] A.V. Sergienko, M. Atature, G. Di Giuseppe, G. Jaeger, Saleh, B. E. A., M.C. Teich, "Hyper-entangled States and Free-Space Quantum Cryptography," *Proceedings of SPIE* **4821**, 41 (2002).
- [6] A. V. Sergienko, G. Di Giuseppe, G. Jaeger, B. E. A. Saleh, M. C. Teich, "Quantum Metrology and Quantum Information Processing with Hyper-entangled Quantum States," in A. Shumovksy and V. I. Rupasov (Eds.), *Quantum Communication and Information Technologies* (NATO-ASI; Bilkent, Turkey 2003), p. 13.
- [7] G. Jaeger, "Entanglement and Symmetry in Multiple-Qubit States: A geometrical approach," *Proceedings Conference Foundations of Probability and Physics - 3, AIP Conference Proceedings* **750**, 180 (2005).
- [8] G. Jaeger, "Symmetry and Concatenated Quantum Codes," in E. Donkor *et al.* (Eds.) *Quantum Information and Computation III, Proceedings of SPIE* **5815**, 27 (2005).
- [9] G. Jaeger and A. V. Sergienko, "Entangled States in Quantum Key Distribution," *Proceedings Conference on Quantum Theory, Reconsideration of Foundations - 3, AIP Conference Proceedings* **810**, 161 (2006).
- [10] G. Jaeger, "Fractal States for Quantum Information Processing," *Proceedings Conference on Foundations of Probability and Physics - 4, AIP Conference Proceedings*, **889**, 120 (2007).
- [11] G. Jaeger and K. Ann, "Decoherence, Disentanglement, and Foundations of Quantum Mechanics," *Proceedings Conference on Quantum Theory, Reconsideration of Foundations - 4, AIP Conference Proceedings* **962**, 108 (2007).
- [12] G. Jaeger and K. Ann, "Non-locality Sudden Death in Tripartite Systems," *Proceedings Conference on Foundations of Probability and Physics - 5, AIP Conference Proceedings* **1101**, 78 (2009).
- [13] G. Jaeger, "Identity, Wholes, and Parts in Quantum Mechanics," *Proceedings Conference on Advances in Quantum Theory, AIP Conference Proceedings* **1327**, 15 (2011).

- [14] G. Jaeger, “Potentiality and Causation,”  
Proceedings Conference on Advances in Quantum Theory,  
*AIP Conference Proceedings* **1424**, 387 (2012).
- [15] G. Jaeger, “Identity, Wholes, and Parts in Quantum Mechanics,”  
Proceedings Conference on Advances in Quantum Theory,  
*AIP Conference Proceedings* **1508**, 237 (2012). [Note: reissue of Ref. 13]

**BOOK REVIEWS (in chronological order):**

- [1] G. Jaeger “Bohmian Mechanics and Quantum Theory: An appraisal,”  
*Studies in History and Philosophy of Modern Physics* **35**, 105 (2000).
- [2] M. Le Bellac and G. Jaeger, “A Short Introduction to Quantum Information and Quantum Computation,”  
*Physics Today* **60**, 64 (May, 2007).
- [3] G. Jaeger, “Do We Really Understand Quantum Mechanics?”  
*Quantum Information Processing* **12**, 2637 (2013).
- [4] G. Jaeger, “Quantum Information Theory and the Foundations of Quantum Mechanics”  
*Notre Dame Philosophical Reviews* 12.15.13 (2013).

**FUNDED GRANTS:**

- [1] G. Jaeger (Co-PI) and A. Bokulich (PI), “Conference: Foundations of Quantum Information and Entanglement,”  
NSF/SES Award No. 0522832 (2006).
- [2] G. Jaeger (Co-PI), B. E. A. Saleh (Co-PI), A. V. Sergienko (PI), and M. C. Teich (Co-PI),  
“Phase-sensitive Quantum-Optical Sensor,” DOD/Army. BAA06-47 (2007).
- [3] G. Jaeger (Co-PI), J. Masters (Co-PI), L. O’Brien Hallstein (Co-PI), G. Pierce (PI), and W. Tilchin (Co-PI),  
“Developing a Culture of Assessment for Interdisciplinary Learning,” Davis Educational Foundation (2009-2011).
- [4] G. Jaeger (Co-PI), A. Sergienko (Co-PI), J. Howell (PI), J. Eberly (Co-PI), R. Boyd (Co-PI), J. Shapiro (Co-PI),  
“High Information Capacity Quantum Imaging,” DARPA (2010-present).
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